

ELIMINATING MALARIA

Case-study 9

Climbing towards elimination
in Bhutan



UCSF GLOBAL HEALTH SCIENCES

THE GLOBAL HEALTH GROUP

From evidence to action



**World Health
Organization**

ELIMINATING MALARIA

Case-study 9

Climbing towards elimination
in Bhutan



UCSF GLOBAL HEALTH SCIENCES

THE GLOBAL HEALTH GROUP

From evidence to action



**World Health
Organization**

WHO Library Cataloguing-in-Publication Data

Climbing towards elimination in Bhutan.

(Eliminating malaria case-study, 9)

1.Malaria - prevention and control. 2.Malaria - epidemiology. 3.National Health Programs. 4.Bhutan. I.World Health Organization. II.University of California, San Francisco.

ISBN 978 92 4 150855 1

(NLM classification: WC 765)

© World Health Organization 2015

All rights reserved. Publications of the World Health Organization are available on the WHO website (www.who.int) or can be purchased from WHO Press, World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland (tel.: +41 22 791 3264; fax: +41 22 791 4857; e-mail: bookorders@who.int).

Requests for permission to reproduce or translate WHO publications –whether for sale or for non-commercial distribution– should be addressed to WHO Press through the WHO website (www.who.int/about/licensing/copyright_form/en/index.html).

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

All reasonable precautions have been taken by the World Health Organization to verify the information contained in this publication. However, the published material is being distributed without warranty of any kind, either expressed or implied. The responsibility for the interpretation and use of the material lies with the reader. In no event shall the World Health Organization be liable for damages arising from its use.

Printed in the USA

Suggested citation: Ministry of Health Bhutan and the World Health Organization and the University of California, San Francisco (2015). Eliminating Malaria: Case-study 9 | Climbing towards elimination in Bhutan. Geneva: The World Health Organization.

Cover photo © Cara Smith Gueye

Design by University of California, San Francisco Global Health Group / Paprika-annexy

Please consult the WHO Global Malaria Programme web site for the most up-to-date version of all documents (<http://www.who.int/malaria>).

Publications of the University of California, San Francisco are available on the UCSF website (<http://globalhealthsciences.ucsf.edu/global-health-group>), Global Health Group, the University of California, San Francisco.

TABLE OF CONTENTS

Acknowledgements.....	vii
Acronyms and abbreviations	viii
Glossary	ix
Summary.....	1
History of malaria and malaria control	1
How will Bhutan achieve elimination.....	1
Lessons learned	2
Introduction	3
The malaria elimination case-study series	3
Malaria in South-East Asia	3
Malaria in Bhutan	3
Country background	5
Geography, population and economy.....	5
Health systems and population health profile	5
History of malaria and malaria control.....	7
Parasites and vectors	7
Pre-control.....	10
Malaria eradication programme (1964–1970).....	10
Malaria control (1971–1995).....	12
Reinvesting in control (1996–2005)	14
Moving towards elimination (2006–2013).....	16
Factors contributing to change over time.....	19
Receptivity.....	19
Vulnerability	19
How did the programme respond to outbreaks from 1980–2005	20
How did Bhutan progress to pre-elimination status between 2006–2013	21
Which populations are most affected by malaria?	33
What is the cost of malaria elimination?	33
How is the program changing to achieve elimination	35
The elimination goal and strategies.....	35
Challenges for the elimination goal	38
Lessons learned.....	41
Conclusion	43

References	44
Annex 1: Data sources and methods.....	47
Annex 2: Development and health profile	48
Annex 3: Structure of the vector-borne disease control programme	50
Annex 4: Detailed information on vectors	52
Annex 5: Standard forms.....	53
Annex 6: Schematic flow diagram of the community-directed educational intervention by community	62
action groups	

ACKNOWLEDGEMENTS

This case-study is part of a series of malaria elimination case-studies conducted by the WHO Global Malaria Programme and the Global Health Group at the University of California, San Francisco (UCSF).

The two groups wish to acknowledge the financial support of the Bill & Melinda Gates Foundation in developing the elimination case-study series. UCSF also acknowledges the financial support of the Asia Pacific Malaria Elimination Network (APMEN). APMEN is supported by the Australian Department of Foreign Affairs and Trade.

Cara Smith Gueye (UCSF Global Health Group) conducted data collection and analysis and drafted this report in collaboration with Tashi Tobgay and Rinzin Namgay of the Bhutan Vector-borne Disease Control Programme, Ministry of Health. Portions of the report were drafted by Brittany Zelman and Nancy Fullman (UCSF Global Health Group).

The authors acknowledge with thanks the many contributions of programme officials and health workers who participated in the collection and analysis of country information, including Thinley Yangzom, Tobgyel, Pema Samdrup and Dechen Pemo. Hugh Sturrock created the elevation map of Bhutan. The following individuals reviewed the case-study and provided important feedback: Roly Gosling (UCSF Global Health Group); Robert Newman, Aafje Rietveld, Richard Cibulskis, Rossitza Kurdova-Mintcheva (WHO/GMP); Nani Nair (WHO Bhutan); and Leonard Ortega (Regional Adviser, Malaria, WHO-SEARO).

Any errors and omissions remain the responsibility of the authors.

ACRONYMS AND ABBREVIATIONS

ABER	annual blood examination rate
ACT	artemisinin-based combination therapy
API	annual parasite index
APMEN	Asia Pacific Malaria Elimination Network
BHU	basic health unit
BBIN	Bangladesh, Bhutan, India and Nepal
BCC	behaviour change communication
CAG	Community Action Group
DDT	dichlorodiphenyltrichloroethane
DOT	directly observed therapy
EQA	external quality assurance
GDP	gross domestic product
GIS	geographic information system
GNH	gross national happiness
G6PD	glucose-6-phosphate dehydrogenase
IEC	information, education, communication
IRS	indoor residual spraying
ITN	insecticide-treated mosquito net
IVM	integrated vector management
KAP	Knowledge, Attitudes and Practices
LLIN	long-lasting insecticidal net
NMCP	National Malaria Control Programme
ORC	outreach clinic

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_27502

